

## **CORE OVERSHOOTING AND ROTATION INSIDE MAIN-SEQUENCE B PULSATORS**

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This proposal is a resubmission of our selected Kepler Guest Observer - Cycle 3 proposal entitled "Core overshooting and rotation inside main-sequence B pulsators" (10-KEPLER10-0036) with some minor modifications and additional details included. For a sample of 9 carefully selected B stars (based on the public Q1 data of non-KASC targets, see Debosscher et al., submitted to A&A) we will deduce the core overshooting parameter value from frequency and period spacings (see Degroote et al. 2010, Nature, 464, 259), and check if we can establish a relation between it and the stellar mass. Via the detection of rotational splitting (see Aerts et al. 2003, Science, 300, 1926) - which was not achieved yet from CoRoT data for B stars - we plan to check the internal rotational law of these carefully selected hot massive stars. To have a sufficient frequency resolution, we need at least one year of long cadence data. We have guaranteed access at the 1.2 meter Mercator telescope on La Palma to take high resolution HERMES spectra for the brighter targets simultaneously with the Kepler observations during the entire season in 2011 and 2012 when the field is visible, and we plan to submit proposals for other spectrographs on larger telescopes to extend our coverage. The first spectroscopic measurements already confirmed that the targets are main-sequence stars of spectral type B, with various projected surface rotational velocity values.